WHAT ABOUT THE LANDFILL?



Is This Polluting the Water?

The landfill is located adjacent to Long Pond, with groundwater flowing towards the Pond. The MEP states that 24% of the nutrient pollution in the Watershed is coming from this location. In 2015, tests showed lower Total Nitrogen levels at Station 6, with variable results from one year to another at Station 5 on Long Pond (see map on reverse). Other testing showed lower values as well, but none were low enough to meet water quality standards set in the TMDL.

What is happening at the landfill that could account for this? The landfill is currently being reduced by mining-removing any valuable fill dirt left behind after all of the organic processes have completed their natural cycle. The leftover plastic, metal, etc. is being reprocessed and reclaimed. The landfill will be reduced to about 15 acres and will be contained in new lined cells constructed to todays standards-no leaching. We will continue with the mining operation and continue to monitor this area closely to determine the impact the mining may or may not have on the water quality in this area.

"Long Pond's Bay Health scores for both stations (5 & 6) in the 4 years of monitoring (2010, 2012, 2013, 2014) clearly indicate poor nutrient related water quality. Town's management of the Landfill, which should reduce the nitrogen load from this source is temporally consistent with improvements in the water quality Index for Long Pond and the lower TN levels. While continued monitoring will determine the level of improvement, it does appear that a reduction in N loading may be occurring with beneficial effects. "

Water Quality Monitoring and Assessment of the Nantucket Island-Wide Estuaries and Salt Ponds Board of Selectmen

Town Administration

Department of Public Works

Board of Health

Natural Resources Department

Planning and Land Use



TOWN OF NANTUCKET

16 Broad Street

Phone: 508-228-7255

Fax: 508-228-7272

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http://www.nantucket-ma.gov/719/Sewer

COMMENT / QUESTION CORNER

Comments and/or questions for the

Wastewater Plan Update can be sent to:

Sewerproject@nantucket-ma.gov

Answers and/or comments will appear in future communications and/or addressed at Board of Selectmen meetings.

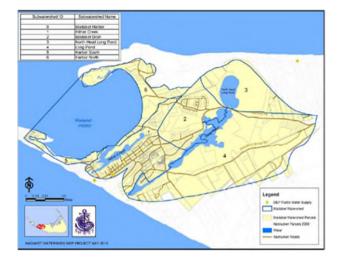
NOTE: All figures are from the MEP Reports and subsequent Technical Memos.

MADAKET HARBOR WATERSHED



WATER QUALITY SUMMARY

2010 THROUGH 2015



Madaket Harbor Watershed

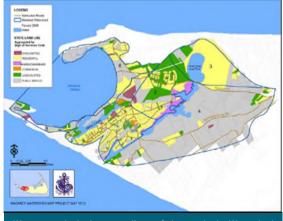
The Madaket Harbor Watershed consists of six sub-watersheds as shown in the figure above from the The Madaket Harbor and Long Pond Estuarine System Report, November 2010 (MEP). Madaket Harbor is one of the largest enclosed bays in southeastern Massachusetts, with the major basin supporting relatively high water quality capable of supporting high quality ecological habitats, such as eelgrass beds. The sub-watersheds of Nos. 1-4 in the above figure, however, are not supporting good water quality based on the ongoing Annual Water Quality Sampling Program the Town manages through the Natural Resources Department. The main reason for this is that the larger, open Madaket Harbor (including sub-watersheds 0, 5 & 6) are open to the ocean and receive a continual flushing of fresh water with the tides. The other sub-watersheds are more closed and do not receive the clean, fresh waters from the ocean. Long Pond is a brackish water (salty with fresh water) that due to its brackish category, does not get breached to the open ocean as is done to improve the water quality in Hummock Pond and Sesachacha Pond. The MEP detailed the nitrogen polluters that the Town is capable of controlling, while also evaluating ways in which the Town can reduce the pollution to meet federal and state water quality standards set in the Clean Water Act. The Environmental Protection Agency (EPA), in coordination with the Massachusetts Department of Environmental Protection (MassDEP), issued mandates, Total Maximum Daily Loads (TMDL) to ensure Nantucket acts to reduce the nutrient pollution to the waters.

Watershed Land Use

The Madaket Harbor and Long Pond Estuarine System Report, November 2010 (MEP), identified the largest Watershed land use as open space and roads taking up 55 percent. The second largest use is residential, of which all use on-site wastewater systems that leach nutrients into the ground. The MEP study determined that the largest contributor of nitrogen pollution is 58 percent from wastewater. Other locally controllable nutrient contributors are the landfill at 24%, storm water at 10% and fertilizer at 8%.

The MEP completed analyses to determine how the Town could reduce the nutrient loading. These "scenarios" of what if we did this or what if we did that, looked at potential solutions to reduce the nutrient pollution to meet water quality standards set by the Clean Water Act. What if the Town removed the landfill totally from the Watershed, would that reduce the nutrient pollution enough to meet water quality standards? The scenario results showed no, not by itself, so we needed additional reductions. What if we eliminated all on-site wastewater? Yes, that meets the water quality standards. This makes sense as wastewater is the largest polluter that, we, as a Town, can control. Would Innovative/Alternative (I/A) Septic Systems meet the water quality standard? The answer is no, as these systems typically remove about 50% of the nitrogen and we need to remove 100% to meet the TMDI.

Besides the nitrogen pollution, the Madaket/Warrens Landing Needs Areas were shown in the CWMP to not be long-term sustainable with septic systems due to the severity of the soils (fast percing) and high groundwater-all pose not only technical issues with meeting state and local regulations, but public health as well. The Board of Health monitors these.



Wastewater is the largest polluter of nitrogen in the Watershed

Sampling History

Madaket Harbor Watershed is sampled in the outer Harbor, Hither Creek and Long Pond as shown in the figure below. The water quality standard per the TMDL is set at Station 1 in the middle of Hither Creek.

The sampling typically takes place from May through October, with multiple samples taken at each location through the period. Tests are done to determine salinity, Total Nitrogen, ammonium, orthophosphate and chlorophyll-a and pheophytin-a (how much oxygen is in the water to support aquatic life). These tell us if the water is salt or fresh or a combination (brackish as in Long Pond), how much light is able to penetrate the water, how clear the water is, how nutrient enriched the water is and where it is impacted.



Samples are collected by the Natural Resources Department (NRD) and all work is coordinated with and processed by the University of Massachusetts School of Marine Science and Technology (SMAST). SMAST has worked analyzing water quality in Nantucket from 2010-present, with the exception of 2012 when the Town used another entity. SMAST historically coordinated data with the Town's Marine Department before the NRD, which had many years of sampling to evaluate.

The sampling information in this brochure has been decades in the making. For those who would like more detailed information, The Madaket Harbor and Long Pond Estuarine System Report, November 2010 (MEP) can be accessed in its entirety on the NRD website at:

http://www.nantucket-ma.gov/132/Water-Quality-Initiative